

CLAIMS

1. A host cell containing a recombinant expression vector, said vector encoding a protein comprising at least a portion of a *Clostridium botulinum* toxin, said toxin selected from the group consisting of type B toxin and type E toxin.
- 5 2. The host cell of Claim 1, wherein said host cell is capable of expressing said protein at a level greater than or equal to 5% of the total cellular protein.
3. The host cell of Claim 1, wherein said host cell is capable of expressing said protein as a soluble protein at a level greater than or equal to 0.25% of
- 10 the total soluble cellular protein.
4. The host cell of Claim 1, wherein said host cell is an *Escherichia coli* cell.
5. The host cell of Claim 1, wherein said host cell is an insect cell.
6. The host cell of Claim 1, wherein said host cell is a yeast cell.
- 15 7. A host cell containing a recombinant expression vector, said vector encoding a fusion protein comprising a non-toxin protein sequence and at least a portion of a *Clostridium botulinum* toxin, said toxin selected from the group consisting of type B toxin and type E toxin.
- 20 8. The host cell of Claim 7, wherein said portion of said toxin comprises the receptor binding domain.

9. The host cell of Claim 7, wherein said non-toxin protein sequence comprises a poly-histidine tract.

10. A vaccine comprising a fusion protein, said fusion protein comprising a non-toxin protein sequence and at least a portion of a *Clostridium botulinum* toxin, said toxin selected from the group consisting of type B toxin and type E toxin.

11. The vaccine of Claim 10 further comprising a fusion protein comprising a non-toxin protein sequence and at least a portion of *Clostridium botulinum* type A toxin.

10 12. The vaccine of Claim 10, wherein said portion of said *Clostridium botulinum* toxin comprises the receptor binding domain.

13. The vaccine of Claim 10 wherein said non-toxin protein sequence comprises a poly-histidine tract.

14. The vaccine of Claim 10, wherein said vaccine is substantially endotoxin-free.

15 15. A method of generating antibody directed against a *Clostridium botulinum* toxin comprising:

a) providing in any order:

i) an antigen comprising a fusion protein comprising a non-toxin protein sequence and at least a portion of a *Clostridium botulinum* toxin, said toxin selected from the group consisting of type B toxin and type E toxin, and

- ii) a host; and
b) immunizing said host with said antigen so as to generate an antibody.

5 16. The method of Claim 15, wherein said antigen further comprises a fusion protein comprising a non-toxin protein sequence and at least a portion of *Clostridium botulinum* type A toxin.

17. The method of Claim 15, wherein said portion of said *Clostridium botulinum* toxin comprises the receptor binding domain.

10 18. The method of Claim 15 wherein said non-toxin protein sequence comprises a poly-histidine tract.

19. The method of Claim 15 wherein said host is a mammal.

20. The method of Claim 19 wherein said mammal is a human.

21. The method of Claim 15 further comprising step c) collecting said antibodies from said host.

15 22. The method of Claim 21 further comprising step d) purifying said antibodies.

23. The antibody raised according to the method of Claim 15.

24. The antibody raised according to the method of Claim 16.

add B²
add D¹
add E²
add F²
add G⁵
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